

In the Claims:

Please cancel claim 3.

Please amend claims 1, 4, 5, 6 and 10 as set forth in the Listing of Claims below.

Please add new claim 19 as set forth in the Listing of Claims below.

LISTING OF CLAIMS

Claim 1 (Currently Amended): A substrate processing apparatus comprising:
a rotary workpiece-holding means for holding and rotating a substrate;
a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary workpiece-holding means;
a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary workpiece-holding means; and
a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the substrate;
wherein the processing liquid pouring nozzles are held in alignment with straight lines extending between the center of the rotary workpiece-holding means about which the rotary workpiece-holding means rotates and a plurality of nozzle holding openings formed at suitable intervals in the nozzle-holding means, respectively, flexible supply tubes connecting the processing liquid pouring nozzles to processing liquid sources are arranged on extensions of the straight lines, respectively, and each processing liquid pouring nozzle and the supply tube connected to the processing liquid pouring nozzle move along the straight line when the nozzle carrying means carries the processing liquid pouring nozzle; and
wherein the nozzle-holding means includes horizontal movement inhibiting members that engage with the opposite side surfaces of the processing liquid pouring nozzles, and each of the processing liquid pouring nozzles has vertical movement inhibiting projections that engage with the opposite ends of the horizontal movement inhibiting member.

Claim 2 (Previously Presented): The substrate processing apparatus according to claim 1, wherein each of the processing liquid pouring nozzles has a block-shaped nozzle head connected to the supply tube, and a nozzle tip attached to the nozzle head; and the nozzle-holding means is provided with angular position determining walls disposed adjacently to the nozzle holding openings such that sides of the nozzle heads of the processing liquid pouring nozzles are contiguous with the angular position determining walls, respectively.

Claim 3 (Canceled)

Claim 4 (Currently Amended): The substrate processing apparatus according to claim 3 1, wherein the horizontal movement inhibiting members are provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in place, and the processing liquid pouring nozzles are provided with plates at positions respectively corresponding to the attractive fixating means.

Claim 5 (Currently Amended): The substrate processing apparatus according to claim 1, wherein the nozzle carrying means is movable ~~in optional directions~~ in a horizontal plane parallel to the surface of the substrate ~~and in vertical directions~~.

Claim 6 (Currently Amended): A substrate processing apparatus comprising: The substrate processing apparatus according to claim 1,

a rotary workpiece-holding means for holding and rotating a substrate;
a plurality of processing liquid pouring nozzles for pouring processing liquids on
a surface of the substrate held by the rotary workpiece-holding means;
a nozzle-holding means for holding the processing liquid pouring nozzles at their
home positions beside the rotary workpiece-holding means; and
a nozzle carrying means for detachably gripping desired one of the processing
liquid pouring nozzles held on the nozzle-holding means, and carrying the desired
processing liquid pouring nozzle to a working position above the substrate;

wherein the processing liquid pouring nozzles are held in alignment with straight lines extending between the center of the rotary workpiece-holding means about which the rotary workpiece-holding means rotates and a plurality of nozzle holding openings formed at suitable intervals in the nozzle-holding means, respectively, flexible supply tubes connecting the processing liquid pouring nozzles to processing liquid sources are arranged on extensions of the straight lines, respectively, and each processing liquid pouring nozzle and the supply tube connected to the processing liquid pouring nozzle move along the straight line when the nozzle carrying means carries the processing liquid pouring nozzle, and

wherein the processing liquid pouring nozzles are provided in their upper surfaces with a gripping recess with which a gripper included in the nozzle carrying means is able to engage, and a positioning recess with which a positioning pin attached to the nozzle carrying means at a position adjacent to the gripper is able to engage.

Claim 7 (Original): The substrate processing apparatus according to claim 6, wherein the gripping recesses and the positioning recesses of the processing liquid pouring nozzles are formed such that lines connecting the gripping recesses and the positioning recesses are parallel to each other.

Claim 8 (Original): The substrate processing apparatus according to claim 1, wherein a solvent vapor atmosphere creating space in which a solvent is stored and a solvent vapor atmosphere is produced is formed in the nozzle-holding means so as to communicate with the nozzle holding openings of the nozzle-holding means, the lower end of a drain line connected to the nozzle holding openings and extending downward is disposed in a sump formed in the bottom wall of a drain/exhaust duct, and drained liquid flowing through the drain line and overflowing the sump is discharged.

Claim 9 (Original): The substrate processing apparatus according to claim 8, wherein the drain/exhaust duct is connected to a discharge port formed in the bottom of a vessel surrounding

a space extending around and under the rotary workpiece-holding means, and the bottom of the drain/exhaust passage is sloped.

Claim 10 (Currently Amended): A substrate processing apparatus comprising: The substrate processing apparatus according to claim 1,

a rotary workpiece-holding means for holding and rotating a substrate;

a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary workpiece-holding means;

a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary workpiece-holding means; and

a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the substrate;

wherein the processing liquid pouring nozzles are held in alignment with straight lines extending between the center of the rotary workpiece-holding means about which the rotary workpiece-holding means rotates and a plurality of nozzle holding openings formed at suitable intervals in the nozzle-holding means, respectively, flexible supply tubes connecting the processing liquid pouring nozzles to processing liquid sources are arranged on extensions of the straight lines, respectively, and each processing liquid pouring nozzle and the supply tube connected to the processing liquid pouring nozzle move along the straight line when the nozzle carrying means carries the processing liquid pouring nozzle, and

wherein the nozzle-holding means is provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in a substantially radial arrangement.

Claim 11 (Previously Presented): A substrate processing apparatus comprising:

a rotary holding means for holding and rotating a substrate to be processed;

a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary holding means;

a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary holding means in a substantially radial arrangement in alignment with radial lines extending at predetermined angular intervals from the center of the rotary holding means; and

a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the center of the substrate;

wherein the nozzle carrying means includes a gripper for gripping the processing liquid pouring nozzle, and a positioning pin disposed near the gripper; and

each of the processing liquid pouring nozzle has a block-shaped nozzle head connected to a processing liquid supply tube and provided in its top surface with a gripper receiving hole in which the gripper of the nozzle carrying means engages detachably and a positioning hole formed such that the positioning pin of the nozzle carrying means engages when the gripper engages in the gripper receiving hole;

the positioning pin engages in the positioning hole of the processing liquid pouring nozzle held at the home position on the nozzle-holding means when the gripper engages in the gripper receiving hole of the same processing liquid pouring nozzle; and

the nozzle carrying means engages the gripper and the positioning pin in the gripper receiving hole and the positioning hole of the processing liquid pouring nozzle and carries the processing liquid pouring nozzle along the radial line to the working position above the center of the substrate without changing the angular position of the processing liquid pouring nozzle.

Claim 12 (Previously Presented): The substrate processing apparatus according to claim 11, wherein the gripper and the positioning pin are arranged on a straight line, the gripper receiving hole and the positioning hole of each processing liquid pouring nozzle are arranged on a straight line, the straight lines on which the respective gripper receiving holes and the respective positioning holes of the processing liquid pouring nozzles are extended parallel to each other at predetermined intervals when the processing liquid pouring nozzles are held at the home positions in the substantially radial arrangement on the holding means, the respective

positions of the positioning holes with respect to the corresponding gripper receiving holes of the processing liquid pouring nozzles are different from each other, and the positioning pin of the nozzle carrying means is able to engage in the positioning hole of any one of the processing liquid pouring nozzles.

Claim 13 (Previously Presented): The substrate processing apparatus according to claim 11, wherein the gripper capable of engaging in the gripper receiving hole has a cylindrical body provided in its lower part with a plurality of radial through holes, and a plurality of spherical members placed in the radial through holes so as to be protruded from and retracted into the radial through holes, respectively.

Claim 14 (Previously Presented): The substrate processing apparatus according to claim 11, wherein each of the processing liquid pouring nozzles has a block-shaped nozzle head connected to the supply tube, and a nozzle tip attached to the nozzle head; and the nozzle-holding means is provided with angular position determining walls disposed adjacently to the nozzle holding openings such that sides of the nozzle heads of the processing liquid pouring nozzles are contiguous with the angular position determining walls, respectively.

Claim 15 (Previously Presented): The substrate processing apparatus according to claim 11, wherein the nozzle-holding means includes horizontal movement inhibiting members that engage with the opposite side surfaces of the processing liquid pouring nozzles, and each of the processing liquid pouring nozzles has vertical movement inhibiting projections that engage with the opposite ends of the horizontal movement inhibiting member.

Claim 16 (Previously Presented): The substrate processing apparatus according to claim 15, wherein the horizontal movement inhibiting members are provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in place, and the processing liquid pouring nozzles are provided with plates at positions respectively corresponding to the attractive fixating means.

Claim 17 (Previously Presented): The substrate processing apparatus according to claim 11, wherein the nozzle carrying means is movable in optional directions in a horizontal plane parallel to the surface of the substrate and in vertical directions.

Claim 18 (Previously Presented): The substrate processing apparatus according to claim 11, wherein the nozzle-holding means is provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in a substantially radial arrangement.

Claim 19 (New): The substrate processing apparatus according to claim 1, wherein the nozzle carrying means is movable in vertical direction.